

NewsRelease



National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681-0001

Keith Henry
Langley Research Center, Hampton, VA
(Phone: 757/864-6120/24)

April 5, 2000

RELEASE: 00-015

NASA Selects Commercial Invention of the Year

It won't be long before such diverse products as lipstick, art and circuit boards could benefit from a thermoplastic developed for use in space. NASA thinks so much of the thermoplastic's commercial potential that it named the high-tech material its 1999 Commercial Invention of the Year. A research team from NASA Langley Research Center, Hampton, VA, developed the winning invention.

The material offers protection from ultraviolet radiation as a coating for art and outdoor statues. It promises UV protection as an additive to cosmetics and exterior paints. It offers temperature-resistance when used in the form of solid components in electronic devices like liquid crystal displays and in flexible, printed circuit boards.

Inventors Anne St. Clair, Terry St. Clair and Bill Winfree have been awarded four U.S. patents on the material, which they call Colorless and Low Dielectric Polyimide Thin Film Technology. R&D Magazine also selected the invention as one of the top 100 R&D products for 1999. The technology has been licensed to SRS Technologies, Huntsville, AL, and Triton Systems Inc., Chelmsford, MA.

Originally developed for solar propulsion and power, the material has remarkable qualities of transparency, ultraviolet resistance and operating temperatures. When cast as large thin films, the thermoplastic material serves exceptionally well as solar thermal concentrators for space-based propulsion and power concepts and, potentially, for inflatable large space antennas.

The NASA inventors developed the thermoplastic technology – actually two similar polyimide chemical compounds – in a successful effort to improve upon the solar energy absorption and reflectance of existing space-based systems. Either compound can take the form of a highly-transparent and nearly colorless thin film which has good solar energy characteristics, is resistant to the environmental extremes of space, and is lightweight, simple and economical for space launch applications.

Benefits to the end user can be dramatic. For example, SRS has developed fabrication processes to cast precise thin film segments for use as power augmentation panels for a satellite manufacturer that promise to increase the power production of the satellite's standard photovoltaic arrays.

- more -

- 2 -

Future aerospace applications may include use in optics for space telescopes or spaceborne lasers; antennas for communications, surveillance and positioning; solar shielding; and aircraft and missile cabling.

The inventors will be honored at a NASA Headquarters ceremony at which they will receive an award check and certificate.

Also to be honored at the Headquarters ceremony is a researcher from NASA Goddard Space Flight Center, Greenbelt, MD, who won the NASA Inventor of the Year award for an optical encoder expected to improve the pointing accuracy of the Hubble Space Telescope by a factor of 10.

- end -